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República Argentina

Instalation and User Manual of Change-over Switch: DELTA

PROHIBIDA SU REPRODUCCIÓN

Make sure the electrical installation is far from high voltage cables. SPARK CABLES MUST BE FACTORY ORIGINALS OR OF SIMILAR QUALITY.

Make sure electrical installations are welded and properly isolated.

NEVER thread the pressure gauge using your hand. Use a 14mm-fix wrench.

Direct sunlight on the pressure gauge affects its operation. For example, if the hood is open, the indicator lights might not turn on.

THE PROPER OPERATION OF THE CHANGE-OVER SWITCH DEPENDS ON FOLLOWING THE ABOVE-MENTIONED INSTRUCTIONS.

Prohibida su Reproducción

NOTES

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Technical Features.

Features	Max.	Tip.	Min.	Unit
Input voltage. (V+)	15	13.8	10	VOLT
Current in GAS output. (Ig)	5	–	–	AMPER
Current in PETROL output. (In)	5	–	–	AMPER
Fuse as in DIN 72581 Standards.	5	–	–	AMPER
Height	–	22,5	–	mm
Width	–	39	–	mm
Length	–	69	–	mm

Troubleshooting: Common Symptoms & Solutions

Symptom	Solution
The change-over switch is not working.	▪ Check that the ORANGE cable has +12V with vehicle's ignition switch on, and that BLACK cable is properly connected to Ground. ▪ Check condition of the 5-Amper fuse in electrical installation
If the change-over switch is in the GAS position, the vehicle starts but, after 3 seconds approx,it stops.	▪ Check that the coil negative signal (RED cable) is well received.
The change-over switch is not working properly.	▪ Check that the electrical installation is far from the high voltage cables. ▪ Check that the electrical connections are properly welded and isolated.

F1 Electrónica S.R.L. shall assume no liability for any damage caused to individuals or things resulting from the manipulation of the product by third parties not authorized to that effect.

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WARRANTY CERTIFICATE

Dear customer:
Congratulations on your purchase of this F1 Electrónica product. All our products undergo rigorous quality tests. However, if the product features any kind of defect, please address your installer urgently, who will make the necessary checkups or will intervene as necessary.

General Warranty Information:

This product is warranted by F1 Electrónica for a period of 12 (twelve) months from the date of installation. Defects in manufacturing and materials, as well as defects in everything related to the good operation of the equipment will be covered. Should the product be defective during the warranty period, F1 Electrónica will repair or replace the defective parts. Shipping expenses will be borne by the addressee.

Components or accessories not manufactured by F1 Electrónica will be covered only by the warranties of their respective manufacturers. This warranty is the only one provided by F1 Electrónica. Therefore, any other warranty is excluded.

F1 Electrónica shall assume no liability for any damage against individuals or things resulting from product misfunction, except in the event of gross deceit or intent. This warranty will be valid only for those who are not late in payments.

Conditions:

This warranty will only be valid if this certificate is submitted, which shall be fully filled in, and, enclosed, if necessary, to the purchase receipt. F1 Electrónica may refuse to recognize this warranty if it is incomplete or false. This warranty will only be valid if the product was in good operating conditions at the moment of purchase and its packaging, intact, as F1 Electrónica is the only one that may warranty its origin.

[PARA ENTREGAR AL USUARIO]

Exclusions and Limitations:

a) Maintenance, control, repair or replacement of parts that have deteriorated after normal use.
b) Damage or malfunctioning resulting from wrong installation, misuse or use that does not agree with the technical instructions supplied, and any defect that is not caused by a construction defect, and therefore to the responsibility of F1 Electronica S.R.L.
c) Products installed, repaired, replaced or changed by individuals not authorized in writing by F1 Electrónica.
d) Accidents caused by force majeure (i.e.: fire, water, electromagnetic fields, etc.) not controlled by F1 Electrónica.

Serial Nr.:

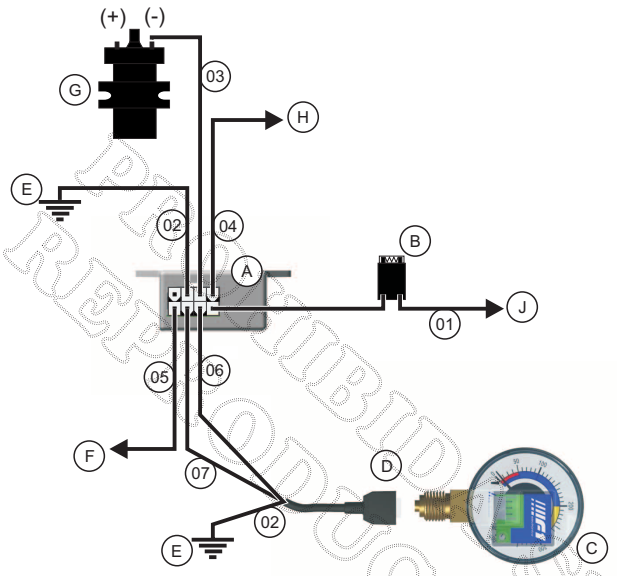
Date of installation:

Vehicle model and brand:

Fitter Stamp:

[TO BE PROVIDED TO USER]

Connection Diagram of DELTA Electronic Change-over Switch



References for the connection diagram of DELTA electronic change-over switch

- (A) Rear view of DELTA change-over switch.
- (B) MAX. 5A Fuse
- (C) Pressure gauge with infrared sensor.
- (D) Connection cables to pressure gauge.
- (E) Chassis GROUND.
- (F) **PETROL electrovalve (CARBURETOR mode).**
- (G) Ignition coil, or ignition module, or ECU.
- (H) Gas electrovalve.
- (J) +12V under ignition swtich.
- (01) ORANGE cable (+12V).
- (02) BLACK cable (GROUND).
- (03) RED cable, **connection to ignition coil negative, or ignition module signal, or *ignition signal of the ECU, or RPM signal of the ECU. This signal must have a minimum amplitude of 5V.***
- (04) BLUE cable.
- (05) WHITE cable.
- (06) YELLOW cable.
- (07) GREEN cable.

Operation of DELTA change-over switch in CARBURETOR mode

GAS position of change-over switch ⏩Ⓖ⏪

If the vehicle's ignition is on, the GAS electrovalve is opened for 3 seconds approxmately. This change-over switch is fitted with a safety device that closes the GAS electrovalve if the engine stops accidentally. While the GAS electrovalve is open, the two-colour led is on in a GREEN color.

Switch-over from GAS to PETROL

Position the switch on PETROL. This will open the PETROL electrovalve while the GAS electrovalve remains open for 4 seconds to allow the carburetor chamber to be filled in. During these seconds, the two-colour led blinks in RED and there is a GREEN light on.

Change-over from PETROL to GAS

Position the switch on the NEUTRAL position (central position of switch), so that the fuel remaining in the carburetor is consumed. The two-colour led indicates this condition blinking with a RED light, then position the switch on GAS.

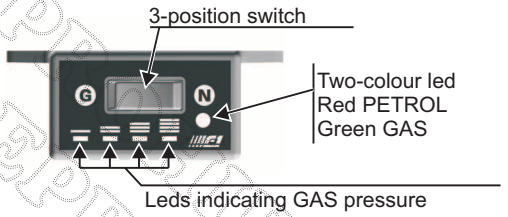
PETROL position of change-over switch ⏩Ⓝ⏪

The vehicle runs on PETROL at all times. The two-colour led remains on showing a RED light.

Instructions for the Connection and Use of DELTA Electronic Change-over Switch

F1 Electrónica congratulates you on your purchase of this product. Through high technology, we offer smaller, more reliable, attractive and easy to install products.That is why we say:
TECHNOLOGY AT THE SERVICE OF CNG.

Description of Change-over Switch Front View



GAS pressure is indicated through 4 leds. The reserve is indicated through the ¼ intermitent led.

Operation of DELTA Change-over Switch

THIS CHANGE-OVER SWITCH IS DESIGNED FOR VEHICLES FITTED WITH ELECTRONIC INJECTION AS WELL AS VEHICLES FITTED WITH CARBURETOR AND ORIGINAL ELECTRONIC IGNITION, BOTH WITH CNG EQUIPMENT.

DEFINITION OF THE OPERATION MODE

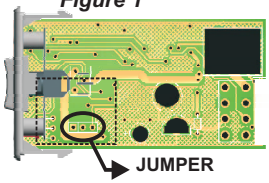
Operation modes are:

1) CARBURETOR mode.
2) DECELERATION INJECTION mode.
3) ACCELERATION INJECTION mode.

ALL DELTA CHANGE-OVER SWITCHES ARE PROVIDED BY MANUFACTURER IN INJECTION MODE WITH AUTOMATIC CHANGE-OVER FROM PETROL TO GAS DURING DECELERATION.

Operation modes are established through a JUMPER placed on the printed circuit board inside the DELTA change-over switch unit, next to the TWO-COLOUR LED, see ***Figure 1***.

Figure 1



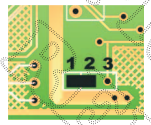


Figura 2

If you place the JUMPER between pins 1 and 2, the mode is defined as INJECTION WITH AUTOMATIC CHANGE-OVER FROM PETROL TO GAS DURING DECELERATION, see ***Figure 2***.

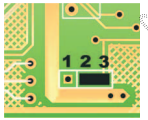


Figura 3

If you place the JUMPER between pins 2 and 3 the mode is defined as INJECTION WITH AUTOMATIC CHANGE-OVER FROM PETROL TO GAS DURING ACCELERATION, see ***Figure 3***.

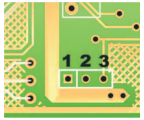


Figura 4

If you remove the JUMPER, the mode is defined as CARBURETOR, see ***Figure 4.***

Operation of DELTA Change-over Switch in INJECTION mode

GAS position of change-over switch ▸Ⓖ◂

The vehicle runs on CNG at all times.
If the vehicle's ignition switch is turned on, the GAS electrovalve is opened for approximately 3 seconds. This change-over switch is fitted with a safety device that closes the GAS electrovalve if the engine stops accidentally.
While the GAS electrovalve is open, the two-colour led is on with a GREEN colour.

PETROL position of change-over switch ▸Ⓝ◂

The vehicle runs on PETROL at all times. The two-colour led is on with a RED light.

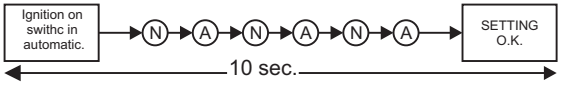
AUTOMATIC position of change-over switch (central position of switch)

The vehicle starts on PETROL and changes-over to GAS automatically either during acceleration or deceleration when pre-established RPM are exceeded. This change-over switch is programmed for automatic change-over at 2500 RPM during deceleration for 4-cylinder vehicles with distributor.

Regulating the automatic change-over system.

The indicator must be placed in SETTING mode (special operating mode) as follows:
Place the indicator switch on the central position, then turn the vehicle's ignition switch on and, within the next 10 (ten) seconds, repeat the following sequence 3 (three) times:

Move change-over switch to PETROL position.
Move change-over switch to central position (AUTOMATIC).

Make sure the change-over switch is left on the central position. The indicator will be on the SETTING mode and this will be indicated by the ¼ and full leds that will be on. At this moment, always with the ignition switch on, start the vehicle and keep accelerated at the desired RPM for automatic change-over. Move the change-over switch to the GAS position and then to the central position so that these revolutions are memorized. The change-over switch will engage the ½ and ¾ leds for a moment indicating the revolutions are succefully programmed.
At this moment, (with the change-over switch on central position) you may test programmed RPM by accelerating the vehicle and seeing that the two-colour led changes from RED to GREEN when the programmed RPM are exceeded. Turn the ignition switch off, and from now on, it is ready to operate normally.

EXPLAINING DIAGRAM: (N) PETROL position. (A) Central switch position.